

ACR Electronics, Inc. 5757 Ravenswood Road Fort Lauderdale, FL 33312 www.acrartex.com **NTSB SAR FORUM JULY 17/18, 2012**

Artex & ACR History



Artex History

- Founded in 1971 by Bob Chambers
- Purchased by Chelton Avionics (Cobham) in 1998
- Moved from Aurora, Oregon to Prescott, Arizona in 2010
- ACR Electronics, Inc Acquired ELT Product line in December 2011 & moved manufacturing to Fort Lauderdale

ACR History

- ACR Manufactures Products for Land, Sea, & Air Markets
- Wide Array of Users In Recreational, Commercial, Military
- Received AS9100 Certification of Quality Management System on April 24, 2012

Number of 406MHz Beacons Manufactured by Artex/ACR

Total Exceeds 1.5 M Beacons (EPIRBs>800K, PLBs>400K, ELTs>200K)

Standards Participation



Artex participation in Aviation standards bodies

- Chairman and Secretary of SC-204 to amend RTCA DO-204 to DO-204a
- Participant in European/EASA standard change from ED-62 to ED-62a
- Participant in RTCM SC110 subcommittee on 406 MHz Beacons

ACR participation in Land/Marine Standard bodies

- Chairman of RTCM SC110 (Beacons), SC128 (SENDs), SC119 (VHF DSC Hand Held Radios) subcommittees
- Participant in RTCM SC119 Maritime Survivor Locator Devices Subcommittee
- Board member of RTCM

Standards Participation



Participation in Cospas-Sarsat Activities

- Head of RTCM Delegation to Cospas-Sarsat
- Represent Beacon Manufacture's at Cospas-Sarsat Meetings and providing input papers as appropriate
- Attend Joint Council meeting providing input on Beacon Specifications
- Attend Experts Working Group Meetings developing Second-Generation Beacon Specifications

International Activities

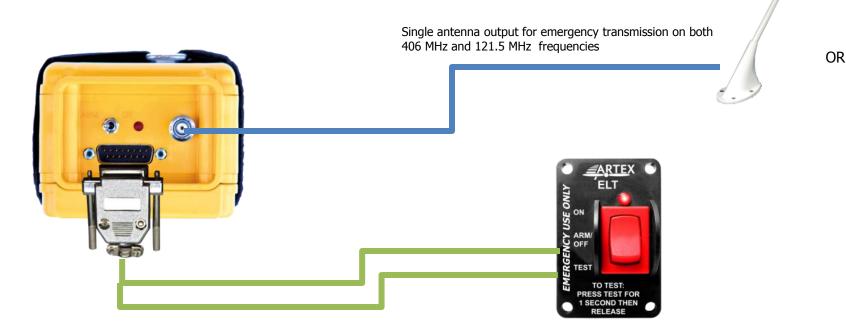
- Expert of IEC TC80 Committee Maritime Navigation and Radio Equipment and Systems
- IEC TC 80 Team 2 Leader for 406 MHz EPIRB Standard
- Member of UK IEC TC80 Committee providing input GMDSS
- Member of UK ITU WP5B committee on input on ITU Aeronautical, maritime and radio location matters.

ELT System Overview



Main ELT Components

- ELT Transmitter (3 GA, 4 Bus/Com, 4 Rotorcraft ELTs)
- Cockpit Remote Switches (12 different Remote Switches)
- Antenna and Coax (5 Blade, 3 Rod, 6 Whip Antennas)



ELT Certification



ELT Certification

- Applicable ELT Technical Standard Order (TSO)
 - TSO C126a, 406 MHz Emergency Locator Transmitter (ELT)
 - <u>RTCA DO-204a</u>, Minimum Operational Performance Standards for 406MHz Emergency Locator Transmitters (ELT)
 - <u>RTCA DO-178b</u>, Software Considerations in Airborne Systems and Equipment Certification
 - <u>RTCA DO-160G</u>, Environmental Conditions and Test Procedures for Airborne Equipment
 - <u>RTCA DO-254</u>, Design Assurance Guidance for Airborne Electronic Hardware
 - <u>COSPAS-SARSAT T.001</u>, Specification for Cospas-Sarsat 406 MHz Distress Beacons
 - COSPAS-SARSAT T.007, Cospas-Sarsat 406MHz Distress Beacon Type Approval Standard
 - <u>TSO C142</u>, Non-Rechargeable Lithium Cells and Batteries
 - <u>RTCA DO-227</u>, Minimum Operational Performance Standards for Lithium Batteries

ELT Certification



RTCA Reference Documents

- **DO-183**, Minimum Operational Performance Standards for Emergency Locator Transmitters Operating on 121.5/243.0 MHz
- <u>DO-188</u>, Emergency Locator Transmitter (ELT) Batteries Guidance and Recommendations
- **DO-182**, Emergency Locator Transmitter (ELT) Equipment Installation and Performance
- **DO-154**, Recommended Basic Characteristics for Airborne Radio Homing and Alerting Equipment for Use with Emergency Locator Transmitters (ELTs)

SAR Improvements



- Systemic feedback to the ELT manufacturers of ELT performance in all Aircraft Accidents
 - Did it activate and for how long
 - If it did not activate, describe why
 - Description of how the ELT was installed
 - Photos of the ELT after the accident
 - ELT routinely sent to the ELT manufacturer after the accident to perform investigation

SAR Improvements



Increase 406 MHz Homing Capability of SAR Community

- 406 MHz 5 watt power vs. 50 milli-Watt power results in greater detection ability
- Large number of Aircraft are already equipped with 406 MHz Direction Finding (DF) capability
- Would allow the removal 121.5/243.0 MHz and its associated Battery capacity
- Reduction in the physical size of the Antenna.
 - The current size of ELT Antenna's is driven in large part by the requirement to transmit on 121.5/243.0 MHz
 - Reduction in the physical size of an ELT Antenna would increase the survivability of the antenna and therefore the integrity of the ELT system
- Would require TSO C126a to be changed as 121.5 Homing capability is currently required

Contact Artex Products



www.acrartex.com